General

Guideline Title

Guidelines of care for the management of atopic dermatitis. Section 1. Diagnosis and assessment of atopic dermatitis.

Bibliographic Source(s)

Eichenfield LF, Tom WL, Chamlin SL, Feldman SR, Hanifin JM, Simpson EL, Berger TG, Bergman JN, Cohen DE, Cooper KD, Cordoro KM, Davis DM, Krol A, Margolis DJ, Paller AS, Schwarzenberger K, Silverman RA, Williams HC, Elmets CA, Block J, Harrod CG, Smith Begolka W, Sidbury R. Guidelines of care for the management of atopic dermatitis. Section 1. Diagnosis and assessment of atopic dermatitis. J Am Acad Dermatol. 2014 Feb;70(2):338-51. [176 references] PubMed

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Hanifin JM, Cooper KD, Ho VC, Kang S, Krafchik BR, Margolis DJ, Schachner LA, Sidbury R, Whitmore SE, Sieck CK, Van Voorhees AS. Guidelines of care for atopic dermatitis. J Am Acad Dermatol. 2004 Mar;50(3):391-404. [212 references]

Recommendations

Major Recommendations

Level of evidence grades (I-III) and strength of recommendations (A-C) are defined at the end of the "Major Recommendations" field.

Note from the National Guideline Clearinghouse (NGC): This document is the first section in a series of four and covers methods for diagnosis and assessment of atopic dermatitis (AD). The second guideline in the series will address the management and treatment of AD with pharmacologic and nonpharmacologic topical modalities; the third section will cover phototherapy and systemic treatment options; and the fourth section will address the minimization of disease flares, educational interventions, and use of adjunctive approaches.

Features to Be Considered in the Diagnosis of Patients with AD

Essential Features—Must be present:

Pruritus
Eczema (acute, subacute, chronic):

- Typical morphology and age-specific patterns*
- Chronic or relapsing history

*Patterns Include:

1. *Facial, neck, and extensor involvement in infants and children*
2. *Current or previous flexural lesions in any age group*
3. *Sparing of the groin and axillary regions*

Important Features—Seen in most cases, adding support to the diagnosis:

- Early age of onset
- Atopy:
  - Personal and/or family history
  - Immunoglobulin E reactivity
- Xerosis

Associated Features—These clinical associations help to suggest the diagnosis of AD but are too nonspecific to be used for defining or detecting AD for research and epidemiologic studies:

- Atypical vascular responses (e.g., facial pallor, white dermographism, delayed blanch response)
- Keratosis pilaris/pityriasis alba/hyperlinear palms/ichthyosis
- Ocular/periorbital changes
- Other regional findings (e.g., perioral changes/periauricular lesions)
- Perifollicular accentuation/lichenification/prurigo lesions

Exclusionary Conditions—It should be noted that a diagnosis of AD depends on excluding conditions, such as:

- Scabies
- Seborrheic dermatitis
- Contact dermatitis (irritant or allergic)
- Ichthyoses
- Cutaneous T-cell lymphoma
- Psoriasis
- Photosensitivity dermatoses
- Immune deficiency diseases
- Erythroderma of other causes

Adapted from Eichenfield LF, Hanifin JM, Luger TA, Stevens SR, Pride HB. Consensus conference on pediatric atopic dermatitis. J Am Acad Dermatol 2003;49:1088-95. Used with permission of the American Academy of Dermatology.

Recommendation for the Diagnosis of AD

Patients with presumed AD should have their diagnosis based on the criteria summarized in the box above. On occasion, skin biopsy specimens or other tests (such as serum immunoglobulin E, potassium hydroxide preparation, patch testing, and/or genetic testing) may be helpful to rule out other or associated skin conditions.

Strength of Recommendations for the Diagnosis and Assessment of AD

Recommendation	Strength of Recommendation	Level of Evidence	References
Diagnosis made using criteria in the box above	C	III	Mevorah et al., 1988; Gu et al., 2001; Lan et al., 2009; Diepgen, Sauerbrei, & Fartasch, 1996; De, Kanwar, & Handa, 2006; Loden, Andersson, & Lindberg, 1998; Samochocki & Dejewska, 2012; Samochocki, Paulochowska, & Zabielski, 2000; Chalmers et al., 2007; Firooz et al., 1999; Saeki et al., 2007; Firooz & Kashani, 2008; Hamada et al., 2005; Williams et al., 1994; Williams et al., 1996
No specific biomarkers for diagnosis or severity assessment	B	II	Murat-Susic et al., 2006; Schulte-Herbruggen et al., 2007; Amon et al., 2000; Dhar et al., 2005; Gerdes, Kurrat, & Mrowietz, 2009; Aral et al, 2006; Di Lorenzo et al., 2003; El Mongy et al., 2008; Ezzat, Hasan, & Shaheen, 2011; Jahnz-Rozyk et al., 2005; Nakazato et al., 2008; Belloni Fortina et al., 2006; Gutgesell et al., 2002; Hirai et al., 1996; Hon et al., 2007; Horikawa et al., 2002; Kakinuma et al., 2003; La Grutta et al., 2005; Leung et al., 2003; Mostafa et al., 2008; Oflazoglu et al., "CD30 expression," 2008; Oflazoglu et al., "CD40 expression," 2008; Ott et al., 2010; Raap et al., 2006; Song et al., 2006; Wolkerstorfer et al., 1998
Immunoglobulin E levels not routinely recommended	A	I	Schneider et al., 2013; Murat-Susic et al., 2006; Schulte-Herbruggen et al., 2007; Gerdes, Kurrat, & Mrowietz, 2009; Aral et al., 2006; Vakirlis et al., 2011; Wu et al., 2011

Recommendation	Strength of Recommendation	Level of Evidence	References
Available disease severity scales not for routine clinical use	C	II	Schmitt, Langan, & Williams, 2007; Schram et al., 2012; Sprikkelman et al., 1997; Angelova-Fischer et al., 2005; Wolkerstorfer et al., 1999; Linnet & Jemec, 1999; Hon et al., 2006; Barbier et al., 2004; Charman, Venn, & Williams, 2002; Charman, Venn, & Williams, 2004; Charman et al., 1999; Cosickic et al., 2010; Emerson, Charman, & Williams, 2000; Hanifin et al., 2001; Holm et al., 2007; Oranje et al., 1997; Rullo et al., 2008
Available quality of life severity scales not for routine clinical use	C	II	Chamlin et al., 2007; Augustin et al., 2004; Hon et al, 2006; Misery et al., 2007
Should query itch, sleep, impact on daily activity, and disease persistence	C	III	Chamlin et al., 2005; Hon et al., 2008; Dawn et al., 2009; Lewis-Jones, 2006; Weisshaar et al., 2008; Ricci et al., 2007; Bender et al., 2008; Ben-Gashir, Seed, & Hay, 2002
Awareness and discussion of common associations	C	I and II	Chamlin et al., 2005; Hon et al., 2008; Batlles-Garrido et al., 2010; Chawes et al., 2010; Sultesz et al., 2010; Kyllonen et al., 2006; Hwang et al., 2010; Hyvarinen et al., 2005; Eller et al., 2009; Horwitz, Hossain, & Yousef, 2009; Bashir, Dar, & Rao, 2010; Schmitt et al., "Psychiatric comorbidity," 2009; Schmitt et al., "Atopic eczema," 2009; Yaghmaie, Koudelka, & Simpson, 2013; Harding et al., 2008; Synnerstad et al., 2008; Vajdic et al., 2009; Kajbaf, Asar, & Alipoor, 2011; Vlaski et al., 2006
Integrated, multidisciplinary approach to care	C	III	Boguniewicz et al., 2008; Ricci et al., 2009

Recommendations for the Use of Biomarkers in the Assessment of AD

- For patients with presumed AD, there are no specific biomarkers that can be recommended for diagnosis and/or assessment of disease severity.
- Monitoring of immunoglobulin E levels is not recommended for the routine assessment of disease severity.

Recommendations for Disease Severity and Clinical Outcomes Assessment

- For the general management of patients with AD, available disease severity measurement scales are not recommended for routine clinical practice, because they were not usually designed for this purpose.
- For the general management of patients with AD, available patient quality of life measurement scales are not recommended for routine clinical practice.
- It is recommended that clinicians ask general questions about itch, sleep, impact on daily activity, and persistence of disease, and currently available scales be used mainly when practical.

Recommendations for the Assessment of Clinical Associations of AD

- Physicians should be aware of and assess for conditions associated with AD, such as rhinitis/rhinoconjunctivitis, asthma, food allergy, sleep disturbance, depression, and other neuropsychiatric conditions, and it is recommended that physicians discuss them with the patient as part of the treatment/management plan, when appropriate.
- An integrated, multidisciplinary approach to care may be valuable and is suggested for AD patients who present with common associations.

Definitions:

Levels of Evidence

I. Good-quality patient-oriented evidence (i.e., evidence measuring outcomes that matter to patients: morbidity, mortality, symptom improvement, cost reduction, and quality of life)
II. Limited-quality patient-oriented evidence
III. Other evidence including consensus guidelines, opinion, case studies, or disease-oriented evidence (i.e., evidence measuring intermediate, physiologic, or surrogate end points that may or may not reflect improvements in patient outcomes)

Grades of Recommendation

A. Recommendation based on consistent and good quality patient-oriented evidence
B. Recommendation based on inconsistent or limited quality patient-oriented evidence
C. Recommendation based on consensus, opinion, case studies, or disease-oriented evidence

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Atopic dermatitis (AD; atopic eczema)

Notes:

> For the guideline, AD is defined as a chronic, pruritic inflammatory skin disease that occurs most frequently in children, but also affects many adults. Atopic eczema is synonymous with AD.
> Other forms of dermatitis, such as irritant dermatitis and allergic contact dermatitis in those without AD, are outside of the scope of this document.

Guideline Category

Diagnosis

Evaluation

Risk Assessment

Clinical Specialty

Allergy and Immunology

Dermatology

Family Practice

Internal Medicine

Pediatrics

Intended Users

Advanced Practice Nurses

Nurses

Physicians

Guideline Objective(s)

To address the diagnosis and assessment of pediatric and adult atopic dermatitis (AD; atopic eczema) of all severities

Target Population

Pediatric and adult patients with atopic dermatitis (AD; atopic eczema)

Interventions and Practices Considered

1. Consideration of essential features, important features, associated features, and exclusionary conditions for diagnosis
2. Disease severity and clinical outcomes assessment:
    - Awareness that there are no specific biomarkers for diagnosis or severity assessment
    - Asking general questions about itch, sleep, impact on daily activity and persistence of disease
3. Assessment of clinical associations:
    - Awareness and assessment of conditions associated with atopic dermatitis (AD) as rhinitis/rhinoconjunctivitis, asthma, food allergy, sleep disturbance, depression, and other neuropsychiatric conditions
    - Integrated, multidisciplinary approach

Note: The following interventions were considered but not recommended for routine clinical practice:

Monitoring of immunoglobulin E levels for assessment of disease severity
Existing disease severity measurement scales
Existing quality of life measurement scales

Major Outcomes Considered

- Occurrence of atopic dermatitis (AD)
- Signs and symptoms of AD
- Associated conditions and risk factors

Methodology

Methods Used to Collect/Select the Evidence

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

An evidence-based model was used and evidence was obtained using a systematic search of PubMed, the Cochrane Library, and the Global Resource for Eczema Trials (GREAT) databases from November 2003 through November 2012 for clinical questions addressed in the previous version of this guideline published in 2004, and from 1964 to 2012 for all newly identified clinical questions as determined by the work group to be of importance to clinical care. Searches were prospectively limited to publications in the English language. Medical Subject Headings (MeSH) terms used in various combinations in the literature search included: atopic dermatitis, atopic eczema, diagnosis, diagnostic, severity course, assessment, biomarkers, outcomes measures, morbidity, quality of life, appearance, comorbidity, food allergy, allergic rhinitis, asthma, cancer, sleep, growth effects, developmental effects, behavioral, psychological, attention deficit hyperactivity disorder (ADHD), treatment, and outcome. A total of 1417 abstracts were initially assessed for possible inclusion. After removal of duplicate data, 292 were retained for final review based on relevancy and the highest level of available evidence for the outlined clinical questions.

The Academy's previously published guidelines on atopic dermatitis (AD) were also evaluated, as were other current published guidelines on AD.

Number of Source Documents

292 publications were retained for final review

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Evidence was graded using a 3-point scale based on the quality of study methodology as follows:

I. Good-quality patient-oriented evidence (i.e., evidence measuring outcomes that matter to patients: morbidity, mortality, symptom improvement, cost reduction, and quality of life).
II. Limited-quality patient-oriented evidence.
III. Other evidence, including consensus guidelines, opinion, case studies, or disease-oriented evidence (i.e., evidence measuring intermediate, physiologic, or surrogate end points that may or may not reflect improvements in patient outcomes).

Methods Used to Analyze the Evidence

Review of Published Meta-Analyses

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

Evidence tables were generated for included studies and used by the work group in developing recommendations.

The available evidence was evaluated using a unified system called the Strength of Recommendation Taxonomy (SORT) developed by editors of US family medicine and primary care journals (i.e., *American Family Physician, Family Medicine, Journal of Family Practice, and BMJ USA*). Evidence was graded using a 3-point scale based on the quality of study methodology (e.g., randomized control trial, case control, prospective/retrospective cohort, case series, etc.) and the overall focus of the study (i.e., diagnosis, treatment/prevention/screening, or prognosis) (see the "Rating Scheme for the Strength of the Evidence" field).

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

A work group of recognized atopic dermatitis (AD) experts was convened to determine the audience and scope of the guideline, and to identify important clinical questions in the diagnosis and assessment of AD.

Clinical questions used to structure the evidence review for the diagnosis and assessment of atopic dermatitis:

- What are the most valid and reliable methods for diagnosing atopic dermatitis?
- What are the most useful tools to assess the severity and course of atopic dermatitis?
- What are the patient- and disease-specific outcome measures used to determine the relative effectiveness of a given treatment for atopic dermatitis?
- What common clinical associations may affect patients with atopic dermatitis?
- What are the epidemiologic risk factors associated with atopic dermatitis?

Clinical recommendations were developed based on the best available evidence. In situations where documented evidence-based data were not available, expert opinion was used to generate the clinical recommendations.

Rating Scheme for the Strength of the Recommendations

Clinical recommendations were developed based on the best available evidence. These are ranked as follows:

A. Recommendation based on consistent and good-quality patient-oriented evidence.
B. Recommendation based on inconsistent or limited-quality patient-oriented evidence.
C. Recommendation based on consensus, opinion, case studies, or disease-oriented evidence.

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

Internal Peer Review

Description of Method of Guideline Validation

This guideline has been developed in accordance with the American Academy of Dermatology (AAD)/AAD Association "Administrative Regulations for Evidence-based Clinical Practice Guidelines" (version approved May 2010), which includes the opportunity for review and comment by the entire AAD membership and final review and approval by the AAD Board of Directors.

Evidence Supporting the Recommendations

References Supporting the Recommendations

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Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for selected recommendations (see the "Major Recommendations" field).

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Appropriate diagnosis and assessment of pediatric and adult atopic dermatitis (AD; atopic eczema)

Potential Harms

Not stated

Qualifying Statements

Qualifying Statements

- Adherence to these guidelines will not ensure successful treatment in every situation. In addition, these guidelines should not be interpreted as setting a standard of care, or be deemed inclusive of all proper methods of care nor exclusive of other methods of care reasonably directed to obtaining the same results. The ultimate judgment regarding the propriety of any specific therapy must be made by the physician and the patient in light of all the circumstances presented by the individual patient and the known variability and biologic behavior of the disease. This guideline reflects the best available data at the time the guideline was prepared. The results of future studies may require

revisions to the recommendations in this guideline to reflect new data.
- In review of the currently available highest level of evidence, the expert work group acknowledges that while much is known about the diagnosis and evaluation of atopic dermatitis, much has yet to be learned.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Implementation Tools

Patient Resources

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Living with Illness

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

Eichenfield LF, Tom WL, Chamlin SL, Feldman SR, Hanifin JM, Simpson EL, Berger TG, Bergman JN, Cohen DE, Cooper KD, Cordoro KM, Davis DM, Krol A, Margolis DJ, Paller AS, Schwarzenberger K, Silverman RA, Williams HC, Elmets CA, Block J, Harrod CG, Smith Begolka W, Sidbury R. Guidelines of care for the management of atopic dermatitis. Section 1. Diagnosis and assessment of atopic dermatitis. J Am Acad Dermatol. 2014 Feb;70(2):338-51. [176 references] PubMed

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

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Guideline Developer(s)

American Academy of Dermatology - Medical Specialty Society

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Guideline Committee

Atopic Dermatitis Work Group

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Financial Disclosures/Conflicts of Interest

The American Academy of Dermatology (AAD) strives to produce clinical guidelines that reflect the best available evidence supplemented with the judgment of expert clinicians. Significant efforts are taken to minimize the potential for conflicts of interest to influence guideline content. Funding of guideline production by medical or pharmaceutical entities is prohibited, full disclosure is obtained and evaluated for all guideline contributors, and recusal is used to manage identified relationships. The AAD conflict of interest policy summary may be viewed at www.aad.org .

Work group members completed a disclosure of interests that was updated and reviewed for potential relevant conflicts of interest throughout guideline development. If a potential conflict was noted, the work group member recused him or herself from discussion and drafting of recommendations pertinent to the topic area of the disclosed interest.

The information below represents the authors' identified relationships with industry that are relevant to the guideline. Relevant relationships requiring recusal for drafting of guideline recommendations and content were not noted for this section.

Dr Tom is supported by a National Institutes of Health/National Institute of Arthritis and Musculoskeletal and Skin Diseases research career development grant (K23AR060274).

Lawrence F. Eichenfield, MD: Dr Eichenfield served as a consultant for Anacor, Bayer, and Leo Pharma receiving honoraria and TopMD receiving stock options; was a consultant and speaker for Galderma, receiving honoraria; served as a consultant, speaker, and member of the advisory board for Medicis/Valeant, receiving honoraria; and was an investigator for Anacor, Astellas, Galderma, and Leo Pharma, receiving no compensation.

Sarah L. Chamlin, MD: Dr Chamlin served on the advisory boards for Galderma and Valeant, receiving honoraria.

Steven R. Feldman, MD, PhD: Dr Feldman served on the advisory boards for Amgen, Doak, Galderma, Pfizer, Pharmaderm, Skin Medica, and Stiefel, receiving honoraria; was a consultant for Abbott, Astellas, Caremark, Coria, Gerson Lehrman, Kikaku, Leo Pharma, Medicis, Merck, Merz, Novan, Peplin, and Pfizer receiving honoraria and Celgene, HanAll, and Novartis receiving other financial benefits; was a speaker for Abbott, Amgen, Astellas, Centocor, Dermatology Foundation, Galderma, Leo Pharma, Novartis, Pharmaderm, Sanofi-Aventis, Stiefel, and Taro, receiving honoraria; served as a stockholder and founder for Causa Technologies and Medical Quality Enhancement Corporation, receiving stock; served as an investigator for Abbott, Amgen, Anacor, Astellas, Basilea, Celgene, Centocor, Galderma, Medicis, Skin Medica, and Steifel, receiving grants, and Suncare Research, receiving honoraria; and had other relationships with Informa, UptoDate, and Xlibris receiving royalty and Medscape receiving honoraria.

Jon M. Hanifin, MD: Dr Hanifin served on the advisory board for Chugai Pharma USA receiving honoraria; was a consultant for GlaxoSmithKline,

Merck Elocon Advisory Board, Pfizer, and Valeant Elidel Advisory Board receiving honoraria; and served as an investigator for Asubio and Merck Sharp & Dohme receiving grants.

Eric L. Simpson, MD: Dr Simpson served as a consultant for Asubio, Brickell Biotech, Galderma, Medicis, Panmira Pharmaceuticals, and Regeneron, and a speaker for Centocor and Galderma receiving honoraria; and was an investigator for Amgen, Celgene, Galderma, and Regeneron receiving other financial benefits.

James N. Bergman, MD: Dr Bergman served as a speaker and consultant for Pediapharm receiving honoraria.

David E. Cohen, MD: Dr Cohen served on the advisory boards and as a consultant for Onset, Ferndale Labs, and Galderma, receiving honoraria; served on the board of directors and as a consultant for Brickell Biotechnology and Topica receiving honoraria, stock, and stock options; and was a consultant for Dermira and Dr Tatoff receiving honoraria and stock options.

Alfons Krol, MD: Dr Krol served as an investigator for Pierre-Fabre receiving grants.

Amy S. Paller, MD: Dr Paller served as a consultant to AbbVie, Alwyn, Amgen, Galderma, GlaxoSmithKline, Leo Pharma, Lundbeck, Medicis, Pfizer, Promius, Sanofi/Regeneron, and TopMD receiving honoraria; and was an investigator for Amgen, Galderma, and Leo Pharma receiving no compensation.

Robert A. Silverman, MD: Dr Silverman served as a speaker for Galderma and Promius receiving honoraria.

Craig A. Elmets, MD: Dr Elmets served on a data safety monitoring board for Astellas receiving honoraria.

Robert Sidbury, MD, Wynnis L. Tom, MD, Timothy M. Berger, MD, Kevin D. Cooper, MD, Kelly M. Cordoro, MD, Dawn M. Davis, MD, David J. Margolis, MD, PhD, Kathryn Schwarzenberger, MD, Hywel C. Williams, PhD, Julie Block, Christopher G. Harrod, MS, and Wendy Smith Begolka, MBS, have no relevant relationships to disclose.

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Hanifin JM, Cooper KD, Ho VC, Kang S, Krafchik BR, Margolis DJ, Schachner LA, Sidbury R, Whitmore SE, Sieck CK, Van Voorhees AS. Guidelines of care for atopic dermatitis. J Am Acad Dermatol. 2004 Mar;50(3):391-404. [212 references]

Guideline Availability

Electronic copies: Available from the American Academy of Dermatology Association Web site .

Print copies: Available from the AAD, PO Box 4014, Schaumburg, IL 60168-4014, Phone: (847) 330-0230 ext. 333; Fax: (847) 330-1120; Web site: www.aad.org .

Availability of Companion Documents

The following is available:

- American Academy of Dermatology (AAD) guideline development process. Schaumburg (IL): American Academy of Dermatology (AAD). Available from the American Academy of Dermatology (AAD) Web site .

Patient Resources

The following is available:

- Atopic dermatitis. For the public. Schaumburg (IL): American Academy of Dermatology (AAD). Available from the American Academy of Dermatology (AAD) Web site .

NGC Status

This NGC summary was completed by ECRI on April 19, 2004. The information was verified by the guideline developer on May 19, 2004. This summary was updated by ECRI on March 15, 2005 following release of a public health advisory from the U.S. Food and Drug Administration regarding the use of Elidel. This summary was updated by ECRI on January 31, 2006, following release of a public health advisory from the U.S. Food and Drug Administration regarding the use of Elidel Cream (pimecrolimus) and Protopic Ointment (tacrolimus). This summary was updated by ECRI Institute on November 6, 2007, following the U.S. Food and Drug Administration advisory on CellCept (mycophenolate mofetil). This summary was updated by ECRI Institute on July 8, 2008, following the updated U.S. Food and Drug Administration (FDA) advisory on CellCept (mycophenolate mofetil) and Myfortic (mycophenolate acid). This summary was updated by ECRI Institute on February 19, 2009, following the U.S. Food and Drug Administration (FDA) advisory on CellCept (mycophenolate mofetil). This summary was updated by ECRI Institute on March 26, 2009, following the updated FDA advisory on CellCept and Myfortic. This summary was updated by ECRI Institute on August 18, 2009, following the revised FDA advisory on CellCept (mycophenolate mofetil). This summary was updated by ECRI Institute on August 24, 2009, following the revised FDA advisory on CellCept (mycophenolate mofetil). This summary was updated by ECRI Institute on September 11, 2009, following the revised FDA advisory on Myfortic (mycophenolic acid). This summary was updated by ECRI Institute on March 18, 2014. The updated information was verified by the guideline developer on May 7, 2014.

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